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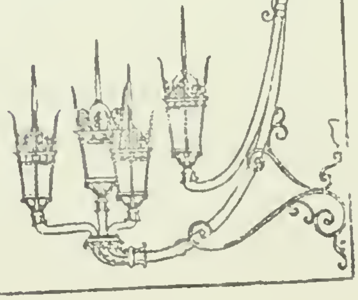

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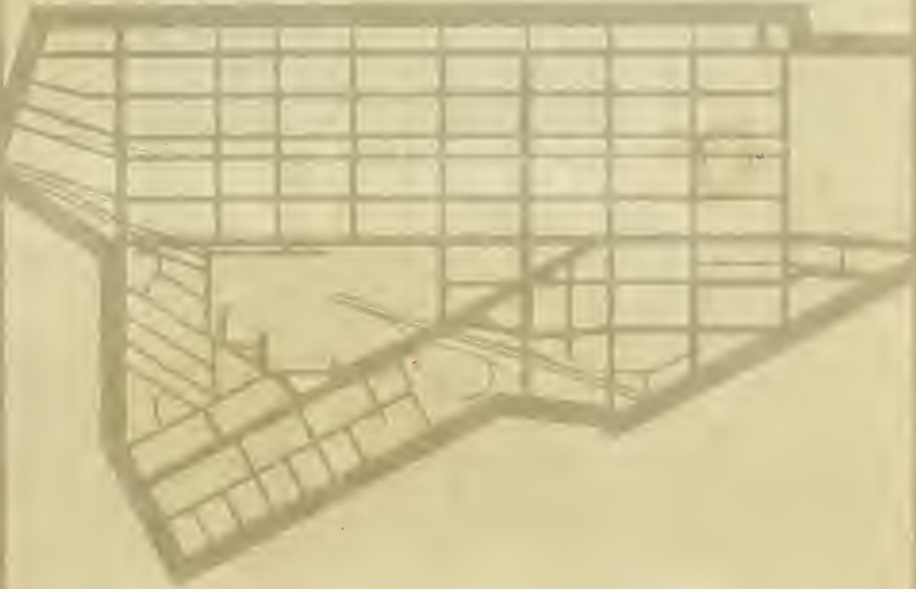

BACK BAY BOSTON

A PLAN FOR CIRCULATION AND PARKING IMPROVEMENTS

Prepared for the Back Bay Planning and Development Corporation by Barton-Aschman Associates - Chicago, Ill.

~~Back Bay~~
~~18285~~

Back Bay Planning and Development Corporation

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This is one of several technical reports prepared for the Back Bay Planning and Development Corporation as part of the development planning program for the Back Bay.

Since this program utilized and combined recommendations and findings from a number of technical reports and other sources, it should be understood that this particular report is not the Back Bay Development Plan in whole or in part.

short + long term parking sites P.25

BACK BAY BOSTON

A Plan for Circulation and Parking Improvements

Back Bay Planning and Redevelopment Corporation

Prepared by Barton-Aschman Associates
Chicago, Illinois October, 1967

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INTRODUCTION

This report presents plans for modifying and improving transportation elements related to Boston's Back Bay area. Circulation and parking plans for Back Bay have been designed both to preserve the amenities of the area and to provide a framework for future development proposals.

The Back Bay is predominately a residential area of historic importance located immediately west of the Boston Central Business District. The commercial section of the Back Bay is adjacent to the Boston CBD, being separated from it only by the Boston Common and the Public Gardens. As a result, Back Bay is a part of the general central area of the city and has interrelationships with the Boston CBD. As defined for this report, the study area is the section generally bounded by Charles Street, Storrow Drive, Charlesgate East and Massachusetts Avenues, the New York, New Haven, and Hartford Railroad, and Columbus Avenue.

The recommendations presented in this study have been developed by Barton-Aschman Associates and refined on the basis of discussions with the Back Bay Planning and Development Corporation and the Boston Redevelopment Authority.

REVIEW OF BACKGROUND REPORTS

Significant background data which has been presented to the Back Bay Planning and Development Corporation by Barton-Aschman Associates in the form of memorandums is reviewed throughout this report where appropriate. These memorandums (contained in a supplement to this report[1]) included the following:

Memorandum dated December, 1965,--"Analysis of Back Bay Circulation and Parking Data"

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[1] Background Reports, Transportation Elements of the Boston Back Bay Area (Barton-Aschman Associates, 1965 and 1966). Available from the Back Bay Planning and Development Corporation.

Memorandum dated March, 1966,--"Additions and Corrections to Back Bay Traffic and Parking Data"

Memorandum dated March, 1966,--"Implications of Recent or Pending Major Transportation and Land-use Changes"

Memorandum dated April, 1966,--"Estimate of Parking Needs--Back Bay"

Memorandum dated April, 1966,--"Additional Comments on Back Bay Circulation"

The sources of data for this report and the previous memorandums included:

Street inventories made by the staff of the Boston Redevelopment Authority and consultants to the Authority.

Eastern Massachusetts Regional Planning Project.

Massachusetts Bay Transportation Authority.

Greyhound Bus Lines.

Field studies by the Boston Redevelopment Authority and Barton-Aschman Associates, including:

Postcard parking surveys.
Parking inventory and occupancy checks.
Origin and destination interviews at the project cordon.
Traffic counts at turnpike ramps.
Pedestrian interviews in November, 1965, and June, 1966.

1.

SUMMARY OF EXISTING CONDITIONS

Detailed information on existing conditions in the Back Bay area has been presented in the memorandums. This section summarizes that data which covers travel characteristics, traffic flow, parking, mass transit, and pedestrian movements.

TRAVEL CHARACTERISTICS

An analysis of existing travel characteristics disclosed that approximately 130,000 person-trips are made into the Back Bay area on an average day. Approximately 83,000 persons arrive by auto or taxi while transit carries approximately 40,000 persons.

TRAFFIC FLOW

The Back Bay area lies along one of the principal traffic corridors serving the Boston Central Business District. For this reason, plans for the revitalization of the Back Bay area have included concepts which would enable CBD-destined traffic to be accommodated and at the same time reduce the congestion on the surface streets within the Back Bay area.

The major portion (62 percent) of the traffic on Back Bay streets during peak hours is through traffic which (theoretically) can be diverted to bypass the area. At present, this traffic is using the surface streets within Back Bay to avoid other, more direct, regional routes which are heavily congested during peak hours. While only 32 percent of peak-hour traffic in the Back Bay area originates in, or is destined to, that area, and only an additional six percent of the traffic can be considered as non-divertible through traffic, it is evident that existing and future traffic generated both in the Back Bay and in the entire metropolitan area will continue to exceed the capacity of even the contemplated future major highway system.

PARKING

There are approximately 6,440 parking spaces in the Back Bay area, excluding the Prudential Center development, the Boston Common Garage, and the residential area in the vicinity of Botolph Street. The 1,500 spaces in the Boston Common Garage are not included in the Back Bay supply in view of the long walking distance separating this facility from the Back Bay commercial area. (However, the garage is used during seasonal peak demand periods.) A total of 5,716 spaces are occupied during a typical midday period. While these figures seem to indicate an adequate supply of parking spaces, it was found that an actual deficiency of reasonably convenient spaces exists due to the geographical distribution of the parking facilities. This is evidenced by the relatively large numbers of vehicles which are either parked in residential on-street space or parked illegally throughout the Back Bay business area.

Studies of the relationships between parking location and purpose of trip in the Back Bay area disclose that short-term parkers (i.e.,shoppers and business patrons) are most seriously inconvenienced by lack of adequate parking space. This is confirmed by the average distance walked by the shoppers (800 feet from the parking space as compared with about 300 feet for employees in the area). To a great extent, the cost of parking throughout the Back Bay area tends to benefit long-term rather than short-term parkers. A notable exception is the heavily-used St. James Garage in which rates are designed to attract short-term parkers.

An analysis of parking supply and demand, which considered daily population and travel mode, indicated that deficiencies in the parking supply are located principally between Arlington and Exeter Streets, and Newbury and Stuart Streets. Based on the existing activity in this area, approximately 1,550 additional long-term spaces and 900 additional short-term spaces are needed. (It should be realized that estimates of parking demand must assume that a proper relationship between the use of private autos and the use of improved public transportation will exist; that is, a certain percent of trips will be made by transit and will not require parking space.)

MASS TRANSIT

The most significant transit service to Back Bay is provided via the Central Subway and the five connecting branch lines. Present deficiencies in this service include inadequate connections to many parts of the metropolitan area, extreme overcrowding during peak hours, obsolete transit facilities, relatively high rates for trips to outlying areas, and

a relatively inefficient surface distribution system. Other forms of mass transportation of lesser importance to the area are the Trailways, Greyhound, and suburban bus systems and the Boston and Albany and New Haven Railroad. However, the proximity of these mass transportation facilities to the Back Bay area is an asset which increases accessibility from other sections of the metropolitan community.

PEDESTRIAN MOVEMENTS

Walking is an especially important mode of travel in the Back Bay area (partially because of the inadequacies of other forms of transportation). Studies also indicate a high number of extremely long walking trips between the Back Bay area and the Boston CBD. Based on pedestrian interviews along Boylston Street, it was found that the greatest number of these walking trips were made for the purpose of shopping.

2.

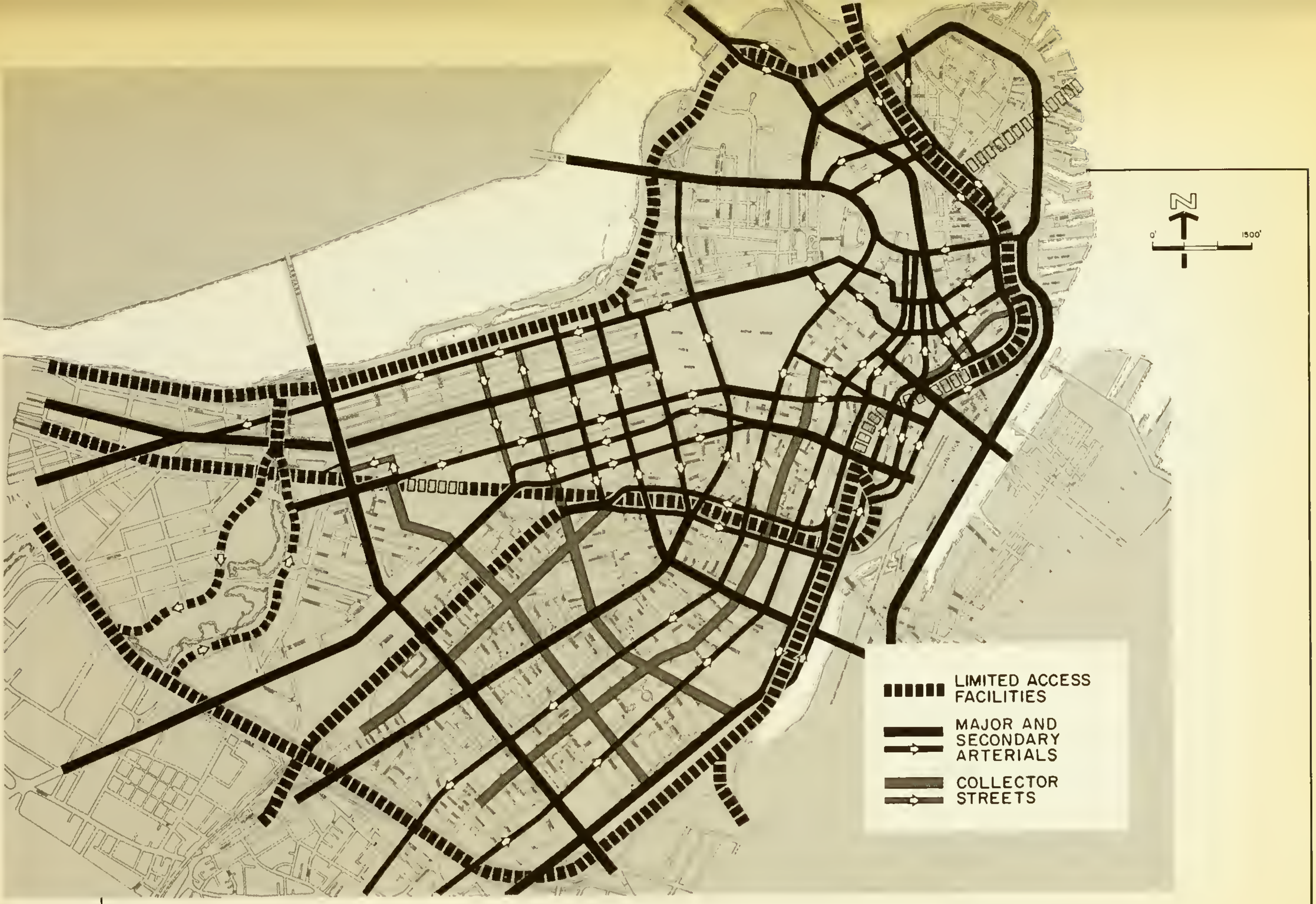
TRANSPORTATION ELEMENTS OF THE PLAN

The transportation planning concepts and objectives which guided the development of the plans for the Back Bay Development Project are as follows:

1. Through traffic should be diverted from Back Bay streets to regional facilities such as Storrow Drive, the Massachusetts Turnpike, the Inner Belt, and the planned South End Bypass.
2. Existing physical features of the area must be preserved, thus precluding major changes to the street pattern within the area.
3. Circulation modifications should be designed to reduce both general traffic congestion and automobile-pedestrian conflicts. This objective should be supported by locating parking facilities at the periphery of employment and shopping concentrations to intercept trips that might otherwise penetrate these areas to reach parking spaces.
4. Efforts should be made to increase the use of public transit.
5. Modifications in the Back Bay circulation system must be related to area-wide circulation patterns and systems.
6. Within the regional parking concept, the patron should be given preferential parking space. This includes a fee structure that attracts the short-term parker and discourages long-term parking (generally employee parking) in the most convenient spaces.

THE CIRCULATION PLAN

The area-wide circulation concept presented in Figure 1 indicates the relationship of the streets within Back Bay to the total Boston CBD and fringe areas. Figure 2 highlights the features of the Back Bay circulation system.



BACK BAY STUDY AREA

AREA CIRCULATION CONCEPT

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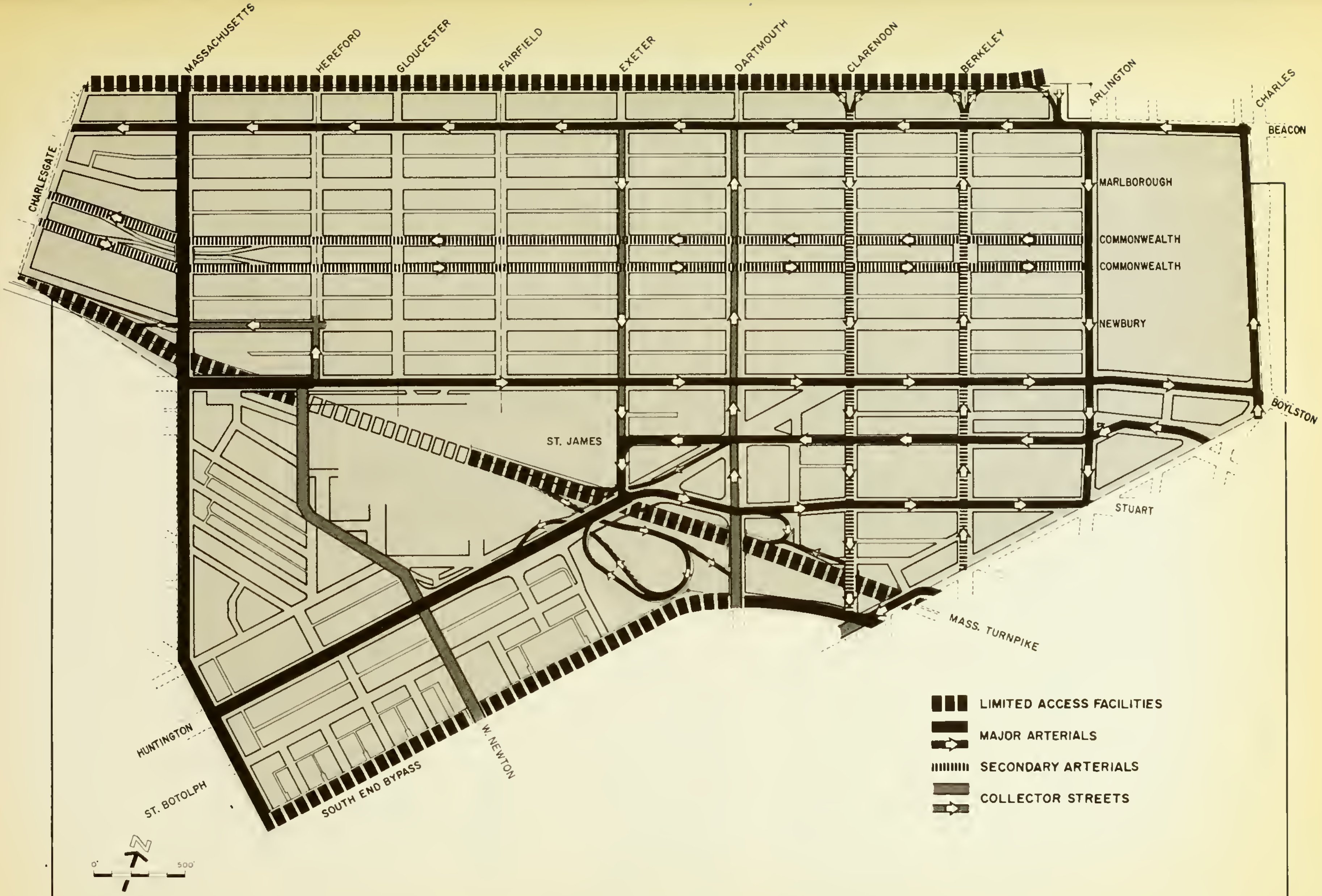
FIGURE I



BACK BAY STUDY AREA

BACK BAY CIRCULATION SYSTEM

BARTON-ASCHMAN ASSOCIATES · CHICAGO, ILLINOIS

FIGURE 2

Key elements of the area-wide circulation plan include the following:

1. Regional routes including Storrow Drive (with some revised ramp connections to Back Bay), the Massachusetts Turnpike extension, and the proposed South End Bypass.
2. Major north-south arterials including Arlington (and Charles) with connections to Tremont; Berkeley and Clarendon with connections to an improved East Berkeley Street; and Massachusetts Avenue (improved). In an east-west direction, Beacon, Commonwealth, Boylston, St. James, Stuart, and Huntington are all classified as important arterials with various improvements or modifications recommended.
3. Secondary or collector north-south routes including Dartmouth and Exeter (converted to one-way north- and southbound operations, respectively), and Dalton-Belvidere-West Newton. Due to the influence of the Newbury Street entrance ramp to the Turnpike, Newbury is also utilized as a collector west of Gloucester.

The function of all other streets in the area should be limited to local access and recirculation. Closing portions of these streets to the extent required by specific planning and development schemes is desirable. Use of the streets as major traffic carriers should be de-emphasized, without impairing their local service function, by employing special design techniques.

IMPACT OF REGIONAL HIGHWAY IMPROVEMENTS

The physical relationship of Back Bay streets to other parts of the Boston area is shown in Figure 1. Functional relationships are discussed below.

The Massachusetts Turnpike extension does not seem to represent an effective alternate route for traffic volumes in the Back Bay area since (1) it is a toll facility and is competing with Storrow Drive and other alternate free surface routes and (2) turnpike traffic will increase only in proportion to the increasing demand for traffic service in the central area of Boston. It is probable that existing surface carriers will continue to be used at and above available capacity. In one respect, the turnpike will have a detrimental effect on Back Bay in that as turnpike volumes increase, traffic loads in the Copley Square interchange area also will increase.

The South End Bypass is planned to follow the right-of-way of the New York, New Haven, and Hartford Railroad to Dartmouth

Street. Beyond Dartmouth it will follow a system of surface frontage roads along the Massachusetts Turnpike. The bypass should provide significant relief for those routes carrying traffic to and from the Boston CBD.

However, as stated in a previously submitted memorandum, the creation of the South End Bypass plus other highway improvements such as those in the Charlesgate area and those contemplated in the CBD, South End, and South Cove area, should not be viewed as ultimate solutions to traffic problems. The continued growth of the entire Boston metropolitan area, the continuation of trends in automobile ownership and usage, and present commitments to highway improvements throughout the area all tend to indicate an increasing demand for automobile facilities. Thus, the improvement of various routes becomes a matter of meeting future demands. Travel requirements along existing major routes probably will remain relatively constant.

Construction of the Inner Belt expressway is also expected to provide some reduction in traffic volumes in the Back Bay area, particularly in connection with traffic moving crosstown. Specifically, traffic flow on Massachusetts Avenue and Arlington, Berkeley, and similar streets which link to Storrow Drive and which are used for non-radial traffic movements would be somewhat reduced.

GEOMETRIC PLAN AND FEATURES

A functional geometric plan recommended for Back Bay streets is presented in the pocket at the end of this report. Changes in the existing street system are highlighted in this plan. The features are as follows:

1. Transitions to the Dartmouth-Exeter Streets one-way pair and the St. James Avenue-Stuart Street one-way pair at the intersection of Huntington Avenue and Exeter Street are accommodated by providing larger radii at the southeast corner of Blagden Street and Exeter Street and the northeast corner of Huntington Street and Exeter Street.

2. Dartmouth Street will need to be widened from Stuart Street south to Columbus Avenue in order to accommodate the traffic in the vicinity of the South End Bypass interchange. The details of this improvement will need to be established as land-use plans and plans for the South End Bypass become more firm.

3. A transition is provided at the Columbus Street end of the Clarendon Street-Berkeley Street one-way pair. A section of street is provided between Clarendon Street and Exeter

Street roughly following the right-of-way of the New York, New Haven, and Hartford Railroad tracks to accomplish the transition from the one-way pair to a two-way Berkeley Street. This section of street will eventually be part of the frontage roads along the Massachusetts Turnpike which are an extension of the South End Bypass.

4. An eastbound on-ramp to the Massachusetts Turnpike from Clarendon Avenue may be desirable in order to augment or replace the existing Huntington Avenue ramp. This may become especially important in terms of developing the parcel bound by Exeter, Blagden, Dartmouth, and Stuart.

5. The geometric plan suggests a possible configuration for providing access to Clarendon Street from Storrow Drive for westbound traffic. This scheme indicates the westbound ramp from Berkeley Street to Storrow Drive as being moved south and elongated to Clarendon Street to allow a storage area for cars approaching Clarendon Street. Coordinated signals would be required at the Clarendon Street intersections with the Storrow Drive ramps.

6. At present the offset at the Embankment Road-Arlington Street-Beacon Street intersection is confusing to drivers and, due to the longer distance through the signal, significantly reduces the capacity of this intersection. Recommended geometrics would eliminate the offset as shown. These geometrics also reflect the possible closing of the northbound ramp from Beacon Street to Storrow Drive.

7. To make Dartmouth operate properly as a one-way northbound street, it is desirable to close the existing ramp for Storrow Drive and provide a new northbound ramp to the west of the existing ramp.

8. As at the Arlington Street-Storrow Drive intersection, it is desirable to reduce the offset from Hereford Street to Dalton Street at Boylston Avenue. This street can be realigned through the fire station property at the corner of Boylston Street and Hereford Street.

The geometric proposals for the Back Bay area fall into four categories which indicate the priority of the improvements:

1. Traffic engineering improvements. These improvements are needed to correct existing operational deficiencies. They include proposals to correct the offsets at the Arlington-Beacon and Hereford-Dalton intersections. Any plans to improve signalization also fall into this category. These improvements should receive top priority.

2. Physical operation improvements. These would be improvements to facilitate the implementation of the circulation concepts. They include improvements such as the Tremont-Charles Street connection which would facilitate the Tremont-Arlington and Charles arterial route. The development of the Frontage Road system along the South End By-pass also falls into this category. These improvements are important to the circulation system of Back Bay and the total Boston downtown area and should proceed as soon as practical.

3. Street modifications. These are changes in the street system needed to enhance the amenities of the Back Bay area. They include narrowing of Dartmouth Street to facilitate a mall and modifications to Marlborough Street so as to improve pedestrian amenities. The physical arrangements of these changes is indicated to provide guidelines for the development opportunities.

4. Street changes. These might be made to accommodate new development. To some degree, the Huntington, Blagden, Stuart, Dartmouth intersection falls into this category. The configuration indicated is in response to development proposals in that area rather than in response to needed traffic operations improvement. It is presented only to indicate the limiting factors that would exist.

3.
PUBLIC TRANSPORTATION

The MBTA's Plan for Mass Transportation[1] has recently been adopted. This plan contains a number of proposals which would benefit transit patrons in general as well as those in the Back Bay area. Since these proposals are in the planning and review stages of development, it is appropriate to examine them at this point.

It has been pointed out previously that extensive public transportation improvements must be made to keep pace with the programmed highway improvements, if even the existing balance between highway and transit usage is to be maintained. Increased use of public transportation can be of additional benefit to Back Bay by reducing the required supply of parking space.

Transit service would be improved (both generally and in the area) if some of the proposed transit extensions were made longer via rail service in order to provide links to and through the Back Bay area. Also, it would be desirable to initiate improvements which would relieve the extreme overcrowding and the congestion along the Central Subway through the Back Bay area.

The MBTA plans include improvement of existing facilities, extensions of existing routes, and possible new route alignments. Figures 3 and 4 indicate both the MBTA program and possible augmentations which would provide additional benefits to the public transportation system generally and Back Bay specifically:

South Shore Extension. MBTA plans to connection this extension to the Cambridge-Dorchester line. The terminus of this line is still not defined; however, according to existing plans it will end either in Braintree or Weymouth. South Shore trains will be routed along the Cambridge-Dorchester

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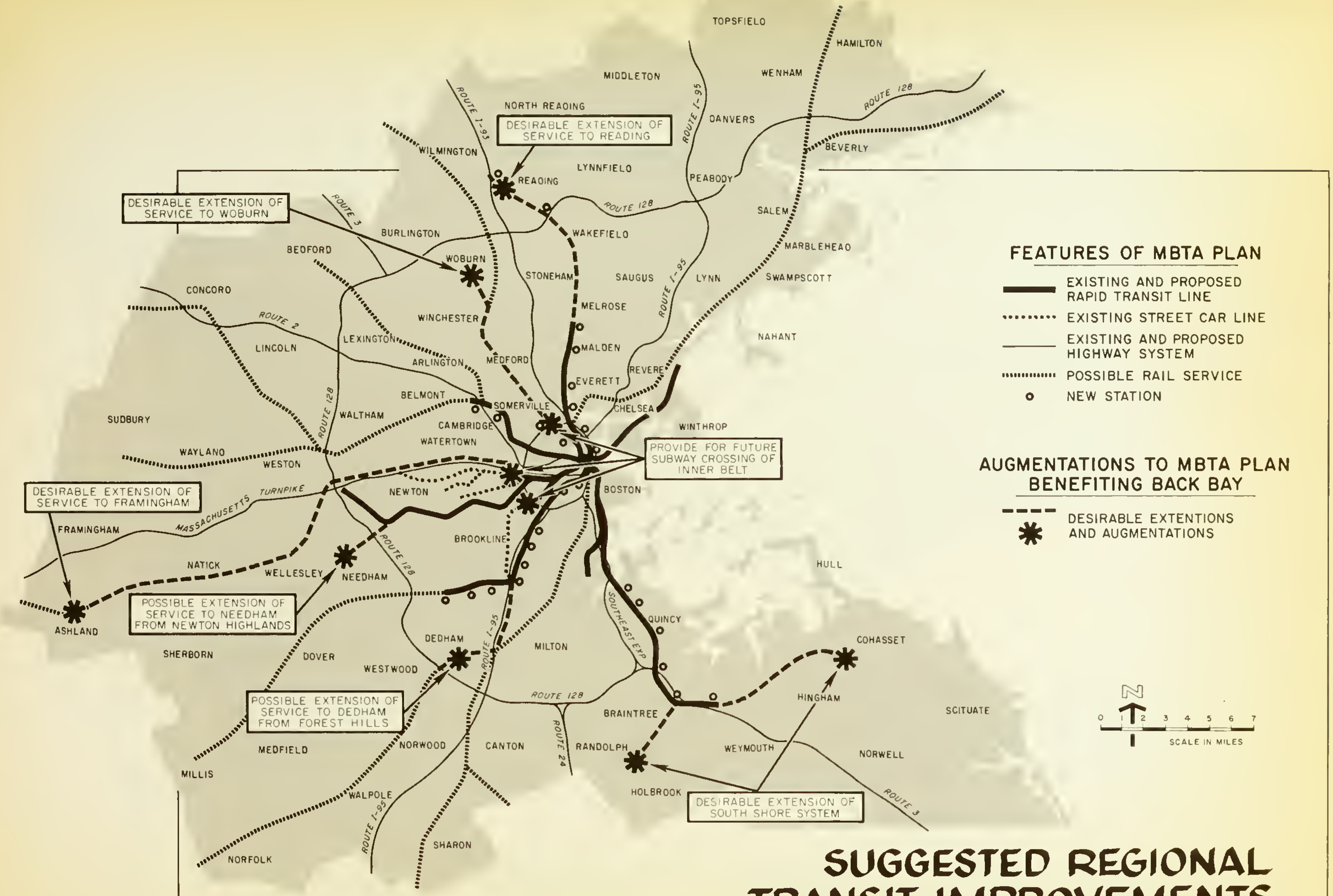
[1] A Comprehensive Development Program for Public Transportation in the Massachusetts Bay Area (Massachusetts Bay Transportation Authority, 1966.)



SUGGESTED REGIONAL TRANSIT IMPROVEMENTS

BACK BAY STUDY AREA

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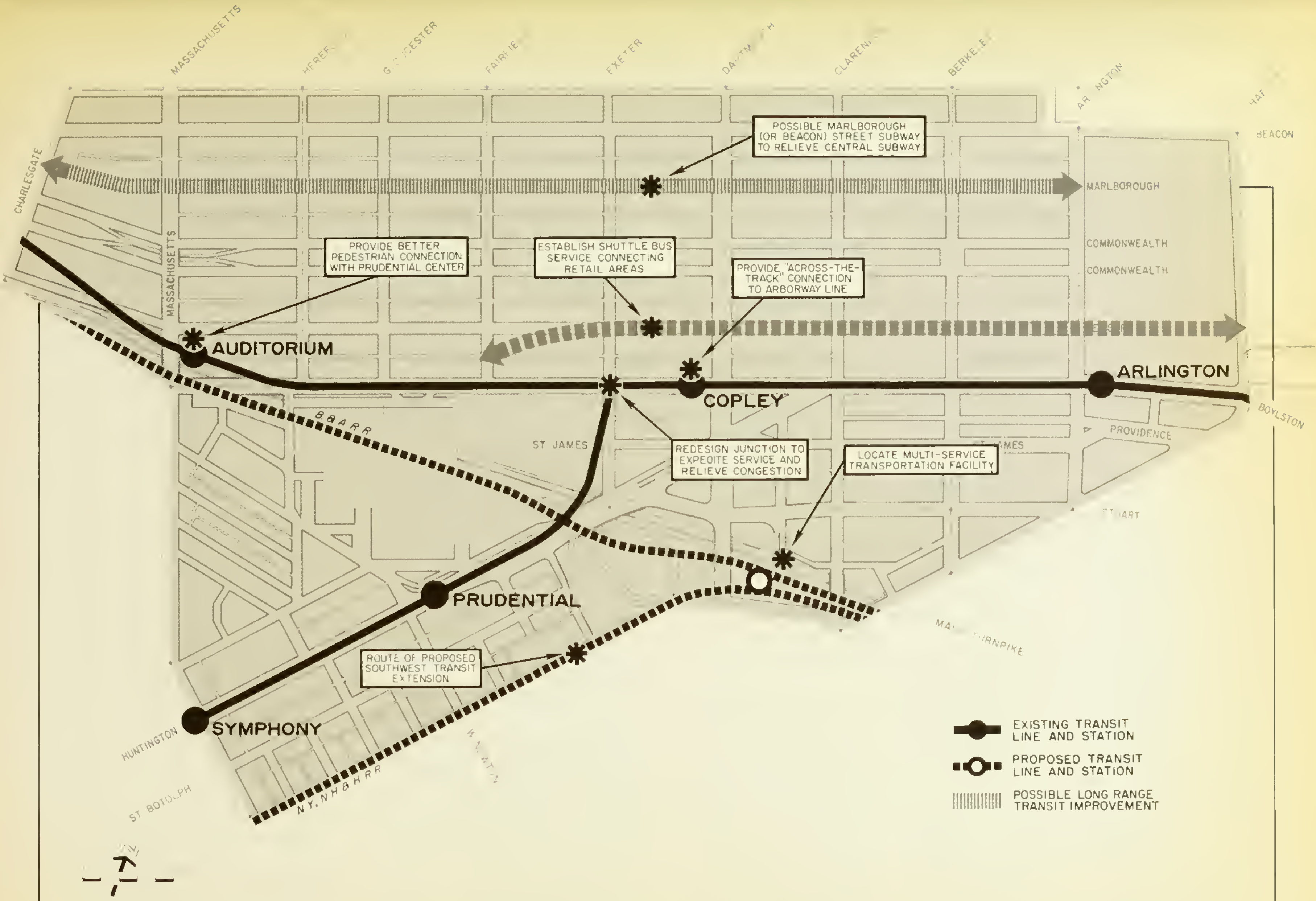
FIGURE 3



POSSIBLE MARLBOROUGH (OR BEACON) STREET SUBWAY TO RELIEVE CENTRAL SUBWAY

PROVIDE BETTER PEDESTRIAN CONNECTION WITH PRUDENTIAL CENTER

ESTABLISH SHUTTLE BUS SERVICE CONNECTING RETAIL AREAS

PROVIDE "ACROSS-THE-TRACK" CONNECTION TO ARBORWAY LINE

REDESIGN JUNCTION TO EXPEDITE SERVICE AND RELIEVE CONGESTION

LOCATE MULTI-SERVICE TRANSPORTATION FACILITY

ROUTE OF PROPOSED SOUTHWEST TRANSIT EXTENSION

EXISTING TRANSIT LINE AND STATION

PROPOSED TRANSIT LINE AND STATION

POSSIBLE LONG RANGE TRANSIT IMPROVEMENT

BACK BAY STUDY AREA

POSSIBLE TRANSIT IMPROVEMENTS

BARTON-ASCHMAN ASSOCIATES · CHICAGO, ILLINOIS

FIGURE 4

line through the Park Street Station, which will allow a simple transfer to the Back Bay system.

The extension of the South Shore line beyond the presently considered terminus represents a highly desirable addition to the MBTA program. This service would provide connections from the Back Bay area to important population concentrations along the South Shore.

Harvard-Alewife Extension. This westerly extension of the Cambridge-Dorchester line will increase the availability of rapid transit service from the western suburbs through Back Bay. The provision of Diesel-powered rail service beyond the proposed terminal appears to be possible. This type of program is desirable and should be strongly supported.

Northern Extensions. The MBTA proposes a northern extension of the Everett-Forest Hills line along the Reading Branch of the Boston and Main Railroad right-of-way to the Melrose-Malden boundary. Extension of this line to provide direct transit service into Reading would result in service to downtown Boston with a convenient internal transfer to Back Bay for several additional middle- and upper-income communities. An expansion to Woburn from the proposed Somerville Extension would be of similar value.

Southwest Extension. This line, which is proposed to begin in the central area and pass through Back Bay along the New York, New Haven, and Hartford Railroad tracks, is one of the more significant transit improvements with regard to Back Bay service. The extension of this line is encouraged. There are two other transit service improvements that would enhance the program for the southwest extension. One is acceleration of the proposal to extend transit service to the Dedham area via the right-of-way of the Southwest Expressway and the other is the establishment of either a rail shuttle service or an extension to Needham from either the proposed line from West Roxbury or Newton Highlands.

Transit improvements which affect the Back Bay and the Central Subway more directly are shown in Figure 4. The Central Subway has received little attention in the MBTA program for mass transportation. Five branch lines (Riverside, Beacon Street, Boston College, Watertown, and Arborway) connect with the subway,which results in overcrowding and congestion. Also there are operational difficulties, such as the at-grade connection of the Huntington Avenue-Arborway line with the Central Subway, which result in delays and reduce the capacity of this route. Other improvements, such as greater patron comfort and convenience and increases in the level of transit service are needed.

A number of possibilities exist which can increase the capacity of the Central Subway and benefit the transit system in general and transit service to the Back Bay in particular.

In the past few years, proposals have been made for additional subway lines through the Back Bay which would provide direct connections between some of the lines radiating from the Central Subway to the Boston Central Business District, thus reducing volumes on the Central Subway. One of these proposals is for a new line along Stuart Street and another is for a new line along Marlborough or Beacon Street. It would appear that a line along the Marlborough or Beacon Street alignment would be the preferred alignment with respect to Back Bay service. At this time, when the MBTA is formulating plans for the future of the Boston area subway system, it appears that exploration of dramatic changes in the existing system would be warranted. Compared with the total scope of the MBTA master plan, an addition of this type (Marlborough/Beacon Street) which would improve a key portion of the Boston downtown-Back Bay transit system, appears to be a valid proposal.

A number of other, less extensive, possibilities could provide relief to the Central Subway:

1. Augment rapid transit service to Watertown Square by providing express bus service from the square along the Massachusetts Turnpike to downtown Boston, thus relieving the demand for this service along the Central Subway.

2. Direct efforts toward providing an express transit system along the existing Boston and Albany tracks which would relieve the Riverside line (and also provide opportunities for extending transit service to a greater area).

During the interim period, while these major projects are being selected or pursued, a number of short-range improvements can be initiated which will materially increase the level of service to transit patrons. These improvements include the following:

1. Reduce the delays caused by the at-grade intersection of the Huntington Street-Arborway line with the Central Subway. At present, all trains approaching this intersection, via the Central Subway, are required to stop even though another train may not be approaching. Alternate methods which might be employed to reduce this problem are the installation of signals or the construction of a left-turn track for the storage of rail cars waiting to turn left. The latter would be the best solution if physically feasible. This would permit through trains to bypass left-turning trains. An alternate to these proposals would be to

provide a lineman to direct train traffic through this intersection during peak hours.

3. Better pedestrian connections between the Prudential Center complex and the Auditorium station are needed. The redevelopment activity at the corner of Hereford and Boylston Streets might create an opportunity to provide a connection with this station.

4. Modernize stations and increase patron convenience. The MBTA has already begun modernization at Arlington station and plans to improve the Copley Square station. This type of a program is recommended not only for these stations but for other stations in the Back Bay and on the entire transit system. In addition to modernization, the Back Bay stations need better maintenance and signing, escalator service, and lighting.

5. Better maintenance of equipment to provide comfort and better operation to attract ridership.

It is suggested (see Figure 4) that in the construction of the Inner Belt provision be made to accommodate future transit extension crossings. This recommendation is made to emphasize the fact that plans for the Inner Belt should reflect the alternate proposals of the MBTA so extension of the transit system will not be preempted or delayed because of the added cost of crossing the Inner Belt.

At present, bus service is provided only at the periphery of the Back Bay area along Massachusetts Avenue, Arlington Street, part of Boylston Street, and Huntington Avenue. At least one line should traverse the interior of Back Bay along either Marlborough or Beacon Streets. The shuttle service is discussed later in this report.

4.

PARKING AND PEDESTRIAN CIRCULATION RECOMMENDATIONS

The Back Bay area will need approximately 2,450 parking spaces in addition to those spaces that may be required by new development. This figure does not include the spaces which will be needed to replace parking eliminated by new development.

The parking plan has been designed essentially to correct existing deficiencies in the supply of spaces. It is necessary that parking for new development be established in a quantity which will satisfy the new demand and that any existing parking cleared for development will be replaced. As development plans become known, such additional parking facilities should be examined for adequacy and proper location. The parking supply required for new development can be estimated by applying the factors indicated in Table 1. In developing these factors, the mode of travel and duration of stay for the population categories associated with the land-uses listed have been considered.

Table 1
RATIO OF PARKING SPACES TO LAND-USE QUANTITIES

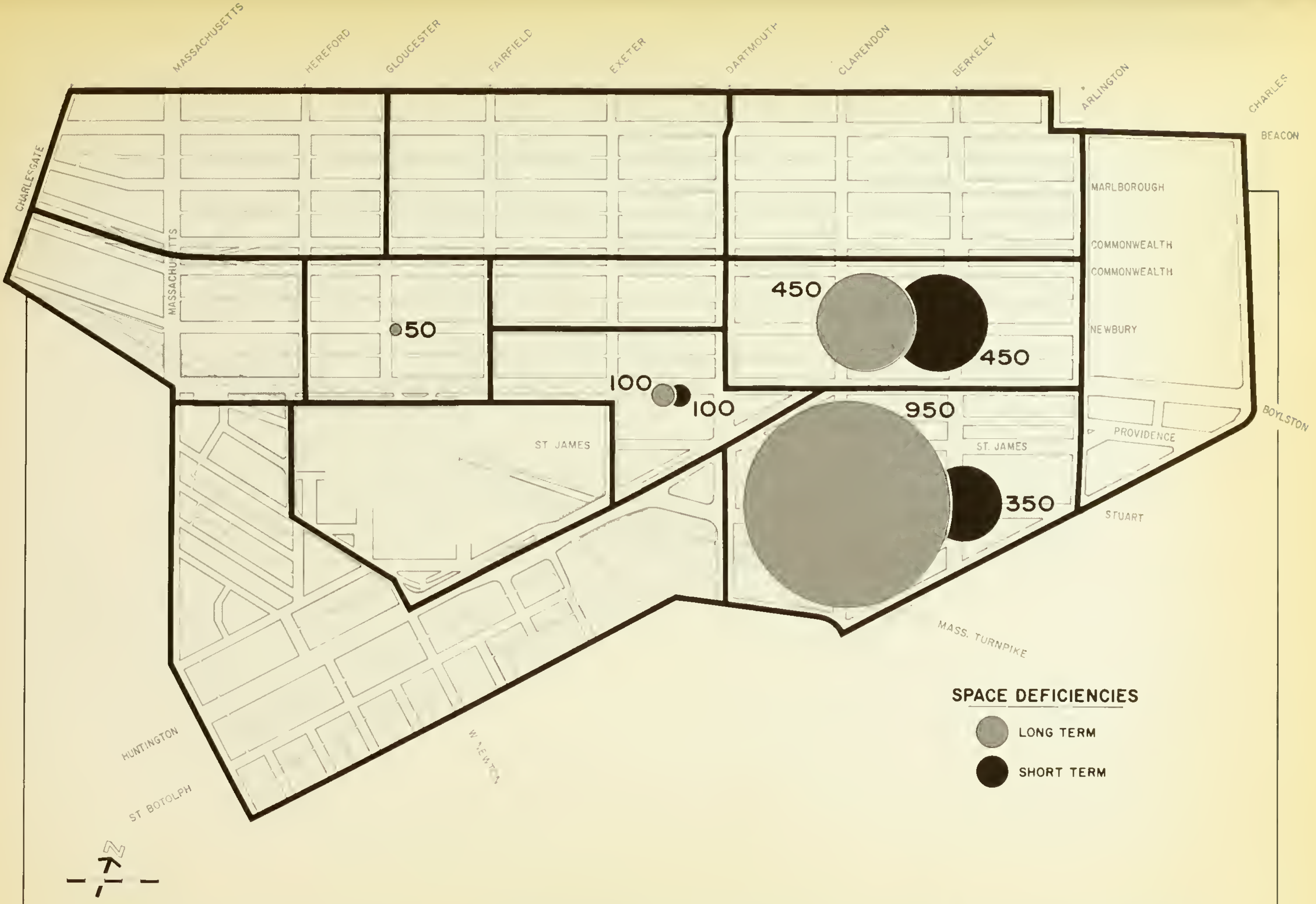
Land-use	Parking Ratio
Residential	1.0 space/dwelling unit.
Office	1.5 spaces/1,000 square feet. This includes 1.4 spaces/1,000 square feet for employee parking and 0.1 spaces/1,000 square feet for visitor parking (visitor parking may have to be increased depending upon type of office).
Retail	1.5 spaces/1,000 square feet. This includes 1.0 spaces/1,000 square feet for patrons and 0.5 spaces/1,000 square feet for retail employees.
Restaurants	1 space/6 seats.
Theater	1 space/2.5 seats.

The locations where parking deficiencies exist during the peak daytime hours is indicated in Figure 5. The area of greatest deficiency is between Arlington and Exeter Streets and on both sides of Boylston Street. The shortage of long-term and short-term parking space in Back Bay represents deficiencies based on a comparison of theoretical parking demand to supply in each subzone. As a result of these deficiencies, parkers "overflow" into adjacent areas, causing apparent shortages. This indicates that parking problems observed in residential areas on the periphery of the commercial zones would be reduced by providing an adequate supply within the areas of high demand.

Within the established Back Bay area, sites which can be developed for parking are limited. Figure 6 indicates those sites which have the greatest potential for the development of high concentrations of parking. In order to develop a plan for future parking, each of the sites was assessed from such standpoints as the quality and usefulness of the adjacent circulation systems, correctness and desirability of access with respect to principal routes leading to Back Bay, appropriateness of location with respect to parking demand, and adequacy of site dimensions.

These criteria, in addition to the transportation-planning objectives presented previously in this report, provided the basis for selecting the most desirable locations for parking space. It was also assumed that these facilities would be operated on a self-parking basis and would be multiple-level structures. It was established that the maximum number of levels would be four for short-term parking and six for long-term parking. The maximum number of spaces in each site was estimated on the basis of 350 square feet per space. A summary of information regarding each of these sites is presented in Table 2.

While sites 4 and 5 appear to be in good location with regard to general area accessibility, they would provide an excess of spaces at the periphery of the area of greatest demand. These two sites would be suitable for long-term parking space or for facilities designed to serve new development in this area. Sites 6, 7, and 8 would provide a sufficient number of spaces in the area where they are needed. The locations of sites 6 and 7 are suitable for short-term use. Sites 1, 2, and 3 also are well located with respect to demand; however,they are not as well located as sites 6 and 7. (Also, sites 1 and 2 do not have adequate dimensions to allow the construction of an efficient self-parking garage.) At present, site 3 is comprised of two separately owned parcels. Each of the parcels has adequate but minimum dimensions for a self-parking garage. The site would be improved if the two parcels



BACK BAY STUDY AREA

DEFICIENCIES IN PARKING SUPPLY

BARTON-ASCHMAN ASSOCIATES · CHICAGO, ILLINOIS

FIGURE 5

Table 2
SUMMARY OF ESTIMATES OF PARKING SITE CHARACTERISTICS

Site	Long-term, Short-term	Maximum Number of Parking Levels	Lot Area	Parking Area	Possible Number of Spaces (350 sq.ft./sp.)
1	ST	4	22,960	916,660	260
2	ST	4	15,560	46,600	130
3	LT & ST	4	35,728	107,000	310
4	LT	6	67,500	405,000	1,150
5	LT	6	67,375	404,000	1,150
6	ST	4	48,706	146,000	420
7	ST	4	49,521	149,000	420
8	LT & ST	6	42,634	256,000	730
9	LT	4	28,025	168,000	320
10	LT	6	26,841	161,000	460
11	LT & ST	4-6	N.A.	-	320-480
12	LT & ST	4-6	N.A.	-	Less than 280

could be used together. In order to have adequate dimensions for a self-parking garage, any facility constructed on site 6 would require air rights over the alley. (It is suggested that air rights begin on the second level with retail use on first level.) The aggregate number of spaces in sites 1, 2, 3, 6, and 7 should not exceed approximately 1,100 with the greatest number of spaces located toward the east side of the commercial area. Site 9 appears to be marginal with respect to location. Site 10 is more acceptable; however, a high concentration of parking should not be located on this site.

An additional site, often mentioned for a variety of uses from a shopping center to an off-street parking facility, is the area of the interchange between Dartmouth Street and the Massachusetts Turnpike bounded by Dartmouth, Huntington Avenue, Harcourt Street, and the rail tracks. (This site is second only to the Prudential site in size.) Three points which must be considered when assessing this site as a parking facility are as follows:

1. While its location is good from the standpoint of access from outlying areas, the location is poor with relation to areas of high parking demand.

2. The close relationship of this site to the interchange results in a difficult design situation. It is desirable that a parking facility be located in the immediate vicinity of an interchange and that good access be provided;

however, if the facility is too close, there is not sufficient space to provide proper maneuvering distance or to allow traffic destined for areas other than the parking facility to disperse. This usually results in congestion at the interchange area.

3. This site cannot be assessed fully until development plans are more specific.

On the basis of the preceding discussion, the parking facility additions presented in Figure 6 are recommended. The parking plan is based on the assumption that sites are available and that a more important land-use is not proposed. It is also assumed that any new, large-scale development will include parking space to offset any demand created by it. The recommended sites are listed in Table 3. When an additional land-use is developed on a site (i.e., retail, office), it is assumed that the quantity of parking space on that site will be increased to accommodate the additional demand generated. This program would satisfy the estimated deficiencies in the parking supply within the commercial area and appears to be the most desirable program using the sites available.

With regard to the residential portions of Back Bay, continuing planning (involving physical arrangement, legal and financial aspects, and stabilization of land-uses which generate parking demand) is required to provide a solution for parking problems on both the streets and alleys in the areas. Considering that the apparent shortage in residential parking will be relieved at the time adequate parking is developed adjacent to the commercial areas, a number of measures are under consideration which will tend to insure more adequate supply of residential parking. These measures are summarized below:

1. The Back Bay zoning proposals recommend that one parking space be provided for each high-rise residential unit.

Table 3
RECOMMENDED PARKING SITES

Site	Use	Spaces
3	Long-term and short-term	310
4 and 5	Long-term	460
6	Short-term	420
7	Short-term	420
8	Long-term and short-term	610
10	Long-term	230

2. The land-use and design proposals for the residential areas generally suggest high-quality, low-density uses which tend to reduce parking needs.

3. Stricter enforcement of parking regulations is being requested. Due to the action of the Back Bay Planning and Development Corporation, the legislature has enacted a bill which makes the schools responsible for student parking violations and requires the use of decals on student cars.

4. Proposed land-use controls discourage expansion of schools in the Back Bay area. This should result in a reduction of the parking demand generated by this type of land-use.

5. Architectural studies are being conducted which suggest the possibility of increasing the number of alley parking spaces.

PARKING POLICIES

There are two principal objectives in using parking rates as part of effective area planning. First, rates tend to control the use of facilities by long-term and short-term parkers. If low first-hour and relatively high all-day rates are established, parking can be made more attractive for the retail patron and office visitor (short-term parkers) and long-term employee parking can be discouraged. Second, low rates generally tend to encourage the use of the private automobile, while higher rates encourage the use of public transit.

Examples of long- and short-term rates are presented in Table 4.

Table 4
EXAMPLE OF PARKING RATES DESIGNED
FOR LONG- AND SHORT-TERM PARKING

St.James Garage	Short-term Rate	Stanhope Street Parking	Long-term Rate
First 30 minutes	0.15	First hour	0.50
Each additional 30 minutes	0.15	Each additional hour	0.25
Maximum	2.50	Maximum	1.25

The parking system is expected to be privately owned and operated, subject to any administrative decision by the city to construct one or more of the facilities in the course of the public parking development program. If the parking system is to function as proposed (with short-term parkers given preferential space) it is necessary that the city or some public agency control parking rates.

The land planners for the Back Bay Planning and Development Corporation have stated that, as a matter of policy, parking garages developed along Newbury or Boylston Street should contain ground floor retail facilities. In other areas of Back Bay, it also is desirable to have garage sites contain smaller land-use in conjunction with the parking.

PEDESTRIAN CIRCULATION

The principal problems regarding pedestrian circulation in Back Bay result from the elongated retail and office district along Boylston Street and the separation of the Back Bay shopping area from the heart of the Boston CBD. Use of some type of a shuttle vehicle (possibly minibus) to connect these areas has been discussed. Such a shuttle system would reduce some of the inconvenience resulting from the elongated nature of the Boston CBD-Back Bay relationship and also reduce the quantity of parking spaces needed in the total area. However, it is probable that the demand for this service would be insufficient to justify the short headways which would be necessary to make this system a success, and that ultimately the system would prove to be financially unfeasible. The extent to which such service might be subsidized would obviously change this conclusion. The service might be initiated as a demonstration project to test public acceptance and feasibility. Possibly a residential loop, through the Back Bay, could be added to operate before and after normal daytime hours. This would allow multiple use of equipment and might improve the financial feasibility of the project.

A secondary pedestrian problem in Back Bay is the need for improved north-south circulation at mid-block and other points. The conversion of Dartmouth Street to one-way operation will allow significant improvements to be made to pedestrian facilities and amenities in that vicinity. As specific site plans and improvements are developed within the blocks between Dartmouth and Arlington, the need for additional mid-block north-south pedestrianways should be recognized.

CONCLUSION

In conclusion, the general plans presented here reflect an attempt to minimize the serious problems caused by motor

vehicle traffic in the Back Bay area and yet not give excessive emphasis to provisions for such traffic. The circulation and parking proposals are intended to provide a framework for continuing detailed planning for area improvement and development.

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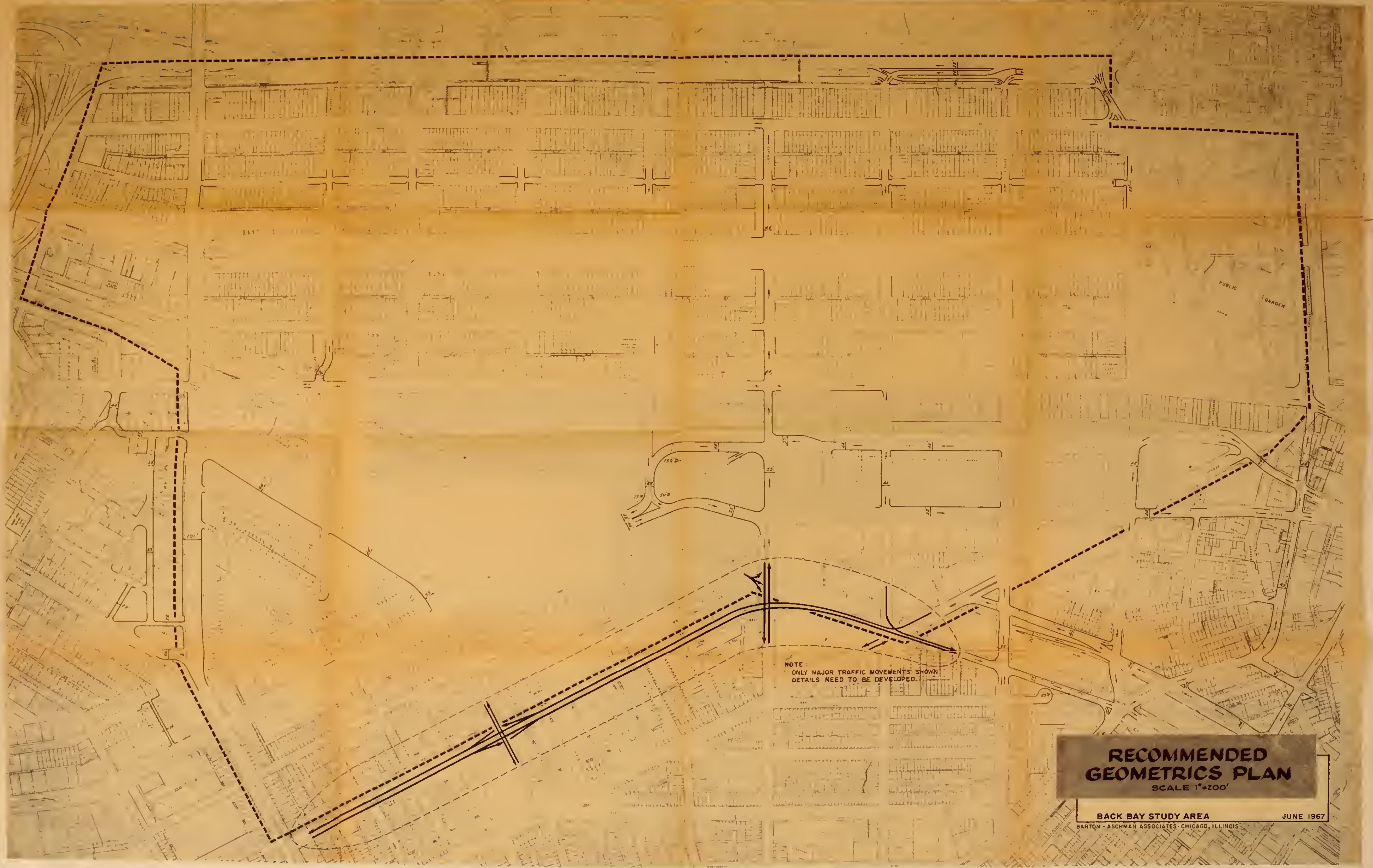

RECOMMENDED GEOMETRICS PLAN

SCALE 1"=200'

BACK BAY STUDY AREA JUNE 1967

BARTON - ASCHMAN ASSOCIATES · CHICAGO, ILLINOIS

NOTE
ONLY MAJOR TRAFFIC MOVEMENTS SHOWN
DETAILS NEED TO BE DEVELOPED.